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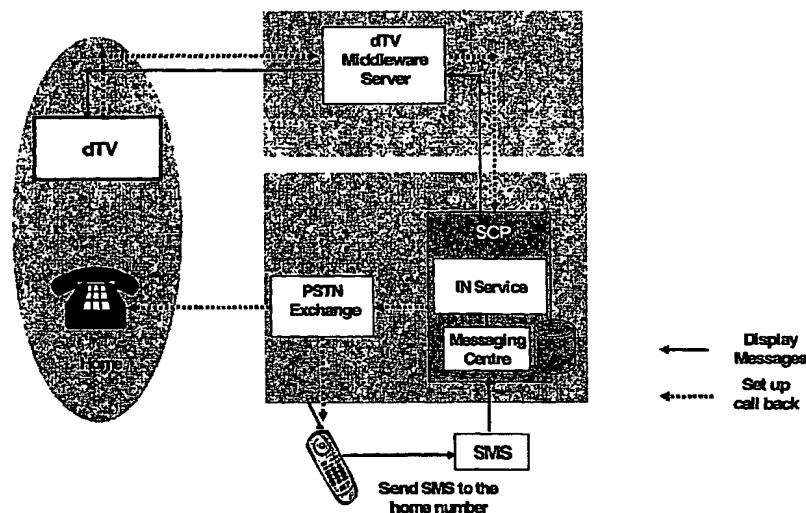
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[Continued on next page]

- (54) Title:** INTERACTIVE DIGITAL TELEVISION MESSAGING SYSTEM



(57) Abstract: A message delivery means is arranged to accept a message from a message source and deliver it to a message recipient device, having a telecommunications system including an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the Intelligent Network platform, the plurality of applications including means to handle received messages and deliver them to the recipient device. A telecommunications system has a message source, a message recipient device and an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the Intelligent Network platform, the plurality of applications including a message delivery means arranged to accept a message from the message source and deliver it to the recipient device. Message source and message recipient can be a digital television system.

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MESSAGING MANAGEMENT

The present invention is concerned with delivering messages, for example to a TV screen, which is associated with a fixed telephone line, and delivered using
5 an Intelligent Network (IN).

The interactive television set may be an analogue television set with a Controller (a decoder, or a 'set-top box', for example) or an integrated digital Television set, both of which will be referred to as 'a dTV' herein. The
10 messaging service may be, for example, GSM Short Message Service (SMS) or IP-based Instant Messaging where a telephone number is associated with the sender. The messages can also contain images and video clips, sent via Multimedia Messaging services, using WAP or 3G and similar technologies.

15 According to the present invention there is provided a message delivery means arranged to accept a message from a message source and deliver it to a message recipient device, comprising a telecommunications system including an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the
20 Intelligent Network platform, the plurality of applications including means to handle received messages and deliver them to the recipient device.

There is further provided a telecommunications system comprising a message source, a message recipient device and an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the Intelligent Network platform, the
5 plurality of applications including a message delivery means arranged to accept a message from the message source and deliver it to the recipient device.

The present invention will now be described with reference to the accompanying single figure, which shows an example of a dTV messaging
10 configuration.

The present invention provides a telecommunications system comprising a message source and a message recipient device, one example of which is a dTV, plus Intelligent Network services, message centres, and means of
15 delivering web pages to a dTV. The message source and the recipient device can be mobile telephones, fixed telephones, computers, personal assistants (PDA), dTVs and various other media and devices.

The invention is likely to increase the volume of messages and bring new
20 revenue to Operators. It would be targeted predominantly at the residential market, or wherever a dTV can be associated with a fixed telephone line. Messages on a TV screen are more readable, generally able to display more information at any one time, and may suit a different population segment.

Messages can be sent to a family as an entity or to those who do not have mobile telephones at all. Even mobile telephone users may prefer this service while at home, since they often tend to switch their mobile telephones off and keep the television on. The TV is a focal point at home that can act as a
5 convenient medium for message retrieval.

The message callback function included in the present invention is also set to increase revenues for the fixed line Operator. It facilitates calling back the message-sender by means of click-to-talk while viewing messages on the dTV.
10 This is a convenient way of making voice contact with the message sender, without having to look up the number or dial out. It brings more traffic to the fixed network whilst saving money for users, since it sets up calls for fixed line telephones instead of users calling back from mobile telephones.

15 From the user point of view, the dTV is the medium for receiving and sending text messages, as well as responding to a message by calling back and establishing a voice/multimedia session.

The user may be notified of waiting messages by either an indicator on the dTV
20 (or the set-top-box), or an icon on the TV screen. The service can be accessed by pressing a designated button on a dTV remote control. The user is then able to view text messages, along with sender details, messages time and date and other related information.

The users can use the dTV remote control or similar devices for navigation and for message management, for example - for deleting messages. The user can also enter new messages via the dTV, by a number of means, for example typing replies via:

5

- the remote control (with mapping to a keyboard);
- a soft keyboard displayed on the dTV screen, or
- infra-red portable keyboard.

- 10 The entered messages, addressed to either the sender of the currently selected message, or to a new addressee (by a telephone number), can then be dispatched.

If the user wishes to respond to the currently viewed message by a telephone
15 call, the callback function can be selected. The user's own telephone rings first, which ensures that a callback was intended and not accidental. When the user hears the telephone ring and picks up the receiver, the destination is then automatically dialled. If the original message-sender answers, the call is connected.

20

Delivery Service elements such as the following may be used:

- Messaging centre (text or multimedia) that can handle fixed telephone addressees;
- Interworking with dTV 'middleware' and the dTV;
- An IN service that formats the message data and sends it on in dTV browser
5 format;
- An IN service that sets up a call from the associated fixed line to the message sender, and/or
- An IN service that generates charging information for messages in the same way as for telephone calls.

10

The recipient message centre must recognise that a destination number is not a mobile telephone, accept a fixed line telephone number as a valid destination, and trigger the IN service. There the dTV address associated with the fixed line number is retrieved. The service sends a message-waiting notification to the
15 dTV, to light up an indicator or display an icon on the TV screen.

When a user clicks on the service icon, the dTV browser sends a request to the IN service to forward the stored message(s) to the dTV. The IN service authenticates the user, identifies the user's personal message store, retrieves
20 the text (or the multimedia file) and reformats it for the special dTV browser.

Users can enter outgoing messages, whether in response to received messages or not, and the message data together with the addressee's telephone number are sent to the IN service, via the dTV browser. The IN service formats the message and forwards it to the message centre for delivery
5 in the appropriate messaging service network.

The callback function is activated on the dTV as a 'click-to-dial', where the user's associated fixed line telephone is connected. The IN service is actually performing a 'third party calling', initiated by a program, not by dialling. The IN
10 service obtains the message sender's Calling Line Identity (CLI) and uses it as the destination. The sender's number may be a mobile number or a fixed line associated with the sender, or any device using telephone numbers. When the call is connected, the IN service will then produce call-charging information that will be billed to the user's fixed line.

15

Outgoing messages cause the IN service to pass charging information to the switch, for it to generate billing records, which can be processed for the normal fixed line subscriber's bill. Furthermore, special incoming messages can also generate charging information, to allow adding items to the telephone bill and to
20 notify the user.

The figure demonstrates, by way of example, how this new service operates. Note that the invention works with either an integrated message centre or an external one, and with a variety of messaging sources and destinations.

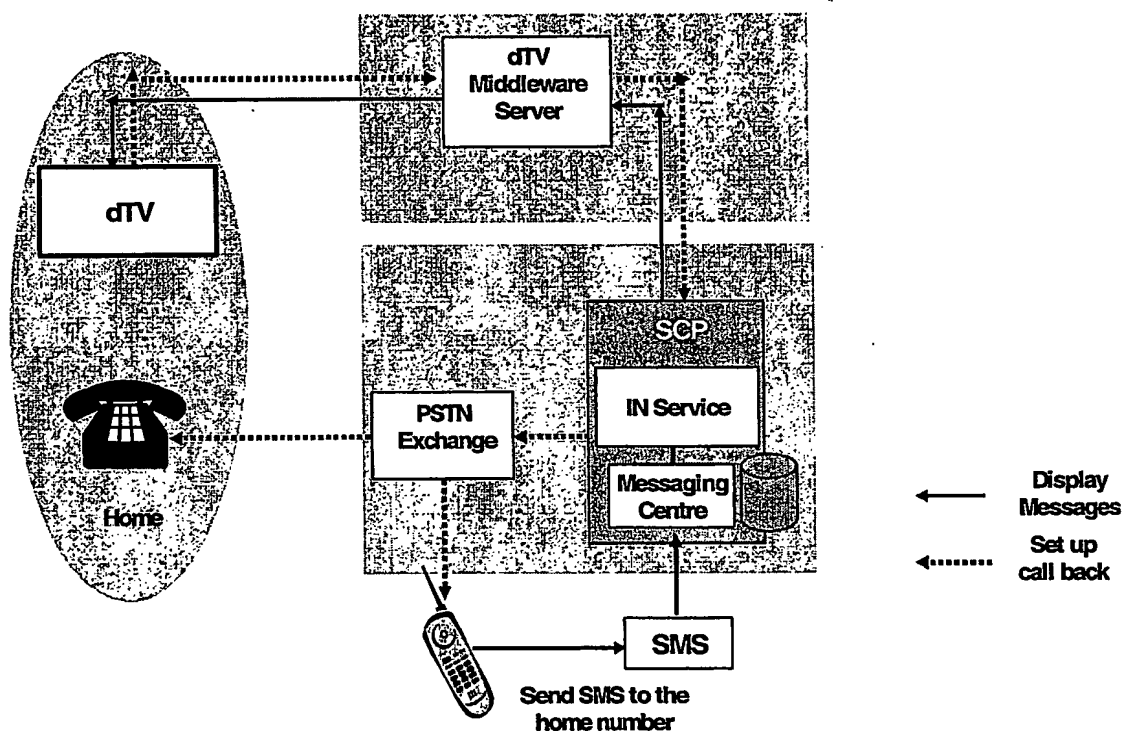
CLAIMS

1. A message delivery means arranged to accept a message from a message source and deliver it to a message recipient device, comprising a telecommunications system including an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the Intelligent Network platform, the plurality of applications including means to handle received messages and deliver them to the recipient device.
2. A message delivery means as claimed in Claim 1, wherein the message source comprises a mobile telephone, WAP telephone, IP/SIP telephone, Computer, Personal Assistant device, or a dTV.
3. A message delivery means as claimed in any one of Claims 1 to 2, wherein the recipient device and/or the message source is a dTV.
4. A message delivery means as claimed in Claim 3, wherein the dTV is connected via a Controller that enables it to be connected to the Intelligent Network platform, by a dial-up modem, DSL, satellite or Cable modem.
5. A message delivery means as claimed in any preceding claim, wherein the dTV initiates calling back the message sender using the received Calling Line Identity.

6. A message delivery means as claimed in Claim 5, where the call is set up for the user's fixed line telephone and can be billed on the user's fixed line telephone bill.
7. A message delivery means substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.
8. A telecommunications system comprising a message source, a message recipient device and an Intelligent Network platform including a plurality of applications, each application being stored at a respective Service Control Point within the Intelligent Network platform, the plurality of applications including a message delivery means arranged to accept a message from the message source and deliver it to the recipient device.
9. A telecommunications system as claimed in Claim 8 wherein the message source comprises a mobile telephone, WAP telephone, IP/SIP telephone, Computer, Personal Assistant device, or a dTV.
10. A telecommunications system as claimed in Claim 8, wherein the recipient device or the source device is a dTV.
11. A telecommunications system as claimed in Claim 10, wherein the dTV is connected via a Controller that enables it to be connected to the

Intelligent Network platform, by a dial-up modem, DSL, satellite or Cable modem.

12. A telecommunications system as claimed in any one of Claims 8 to 11, including means whereby the dTV is used to initiate calling back the message sender using the received Calling Line Identity.
13. A telecommunications system as claimed in Claim 12, where the call is set up for the user's fixed line telephone and can be billed on the user's fixed line telephone bill.
14. A telecommunications system substantially as hereinbefore described, with reference to and as illustrated in the accompanying drawings.
15. A message delivery means or a telecommunication system as claimed in any preceding claim, wherein the Intelligent network platform includes an application that generates billing information for messages to be treated in the same way as billing information for telephone calls.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M H04N H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 00 51318 A (ADAMCZYK MARIA ; BRAND JOEL (US); BELLSOUTH INTELLECT PTY CORP (US)) 31 August 2000 (2000-08-31) abstract; figures 3,4 page 4, line 16 - page 5, line 17	1,2,8,9, 15
Y	page 9, line 24 - page 10, line 15	3-7, 10-14
X	US 5 870 454 A (DAHLEN JOHAN) 9 February 1999 (1999-02-09) figures 3,4 column 3, line 34 - column 4, line 9 column 5, line 45 - line 52 column 6, line 33 - line 40 column 6, line 61 - column 7, line 34 column 8, line 15 - line 35 column 9, line 15 - line 45	1,2,8,9

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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INTERNATIONAL SEARCH REPORT

International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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